Claim 16 limits the unlimited characteristics of the body in 15, which could be preexistent or made concurrently with the cavity, by claiming the body as preexistent.

Claim 17 limits the unlimited characteristics of the cavity which could be made concurrently with the body, by claiming the cavity as preexistent.

Amended claims 1–10 and 15–18 are provided in clean and marked-up form herewith.

4–5. The applicant's invention, in its several forms, provides the resiliency and self-leveling benefits of a floating support device without the weight of liquid previously believed to be required for such floating support. In addition, the use of smaller amounts of liquid helps to avoid the wave perturbations associated with floating support devices that use larger quantities of liquid.

The basis for the Examiner's rejection of claims 1–19 under 35 U.S.C. 101 because the claimed invention lacks utility should be removed as a result of forthcoming evidence which will include signed statements by academically qualified and authoritatively recognized faculty members of educational institutions who have witnessed demonstrations and will attest to the validity of the applicant's claimed invention. It is hoped that this body of evidence will be sufficient to make the revision in the buoyancy law acceptable as an addition to the established laws rather than a violation. If this is deemed insufficient for the Patent Office's purposes, members of additional established and accredited academic bodies will be asked to attest to the validity of the applicant's invention until such authoritative corroboration is deemed sufficiently preponderant. The applicant again offers to send a kit to the Examiner with which she may determine that no violation of natural law has occurred.

6–7. The Examiner's rejection of claims 1–19 under 35 U.S.C. 102(b) as being anticipated by Omachi and the furnished six pictures is not believed to be supported. While Omachi and the six pictures disclose a cavity that is made to hold liquid, the walls that exhibit horizontal conformity and close spacing to the body do not comprise a conformal cavity. The conformal characteristic cannot be limited to opposing sides (port and starboard) of the depicted ships, leaving the bow and stern of the ships relatively unlimited as to liquid access and flow. The applicant's depiction in Fig.2 shows conformal shaping of the cavity fore and aft as well as on the sides. Omachi and the six pictures disclose only partially conformal cavities that cannot limit the weight of a contained supporting liquid to less than the weight of the supported body as do those claimed by the applicant. Moreover, It would not occur to anyone having ordinary skill in the art and accepting the "established laws of buoyancy" to consider construction of conformal cavities with characteristics that demonstrate the applicant's discovery. Rather, such a person would be led to consider such

to be unreasonable and not feasible.

The Examiner states that "Though not specifically disclosed or taught, the limitation that the liquid within the cavity exerting an upward force on the body that is greater than the weight of the liquid that it displaces and an equal to a volume of liquid that had the same volume as the object or that portion that is immersed is considered an inherent trait of the above canals and locks". If this were true it would be a violation of both the established laws and of the applicant's invention, since the established laws state that the force is equal to the weight of the displaced liquid, not greater, and the revised law, in accordance with the applicant's invention, states that "A body, placed in a liquid, is buoyed up by a force equal to the weight of the volume of liquid it displaces in a space not closely confined, and buoyed up by the same force within a cavity having a close horizontal spacing from the body, wherein displacement of a lesser amount of the liquid is made to immerse the body to the same extent." Omachi, the furnished photographs and the furnished Encyclopedia Britannica reference, fail to show or otherwise disclose or suggest a conformal shaping of cavity–to–body and spacing of cavity–to–body that could act to reduce the weight of the immersing liquid to less than that of the vessels and yet achieve an upward buoyant force equal to their weight.

8. The Examiner states that "Applicant's arguments filed July 12, 2001 have been fully considered but they are not persuasive." Regardless of any formal position that equates natural laws and established principles as the same thing, history teaches us that established principles are constantly changed by discovery. However, It has become apparent that the applicant cannot rely upon a simple recognition of demonstrable fact relating to his discovery but must accept the responsibility of establishing his invention over "established law". Offering the simple physical means to prove the validity of his discovery to the Patent Office through the functioning of a working model, has not been enough.

As is pointed out in 6–7 above, the devices referenced by the Examiner as demonstrating the same buoyancy characteristics, simply do not. A liquid containing cavity that displays a degree of conformity to a floating body that fails to limit the weight of the supporting liquid to less than that of the floating body fails to demonstrate the same buoyancy characteristics as those recited in the applicant's claims. The cited references have very limited conformal characteristics which obviously cannot demonstrate or provide the same buoyancy characteristics as those of the applicant's invention.

Since the principles of the applicant's invention are now in the process of being demonstrated and their validity attested-to by persons who are academically qualified and authoritatively recognized in their field, there is every reason to believe that all others in the field will admit to their validity as well. In view of this, once documentation is received by the Patent Office, it is felt that all such basis for objection should be removed and the functionality and patentability of the applicant's invention given due recognition.

Respectfully submitted,

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Docket D-7211(1156)

CLAIMS (PREVIOUSLY AMENDED)

COPY WITH MARKINGS TO SHOW NEW AMENDMENTS

1. A device for providing buoyant support [to physical structures] comprising a member defining a cavity and a body [adapted for connection to such structures and contained] disposed within [a] said cavity, said cavity being [made] adapted to contain a liquid and to have walls that generally conform horizontally in their shaping to the shape of [the] said body to be received in said cavity and immersed in the liquid, said cavity [also] being [made] of a size that causes [the conformal] said walls to [have a relatively close spacing] be closely spaced to [the] side surfaces of [the] said body so that the contained liquid [may exert] exerts an upward buoyant force on [the] said immersed body that is greater than the weight of the liquid that [the] said body displaces within said cavity. [and generally equal to the volume of the liquid that has the same volume as the body or that portion of the body that is immersed so that the total weight of the device may be reduced by reduction of required liquid without reduction of buoyant force.]

2. The device as defined in claim 1, in which [the] a base of [the] said cavity is also made to conform substantially to [the] a base of [the] said body or portion of [the] said body to be immersed and made of a size that will permit [the] said cavity to have a relatively close spacing to both [the] said side surfaces [sides] and [the] said base of [the] said body so that a maximum buoyant force may be achieved with [the] the least [requirement] amount of the liquid [support].

3. The device as defined in claim 1, in which [the] said cavity and [the] said body [are] both have [made with] vertically extended walls of substantially uniform lateral dimensions to permit a substantially uniform horizontal spacing that is maintained at differing levels of body immersion.

4. The device as defined in claim 1, in which [the] said cavity and [the] said body both have [are made to include] sloping walls that reduce their spacing as [an] said immersed body increases its [displacement] immersion to increase the rate of increase in buoyant force [as the body descends by increasing the rate of immersion].

5. [In a] A device for providing buoyancy support [to physical structures comprising a body contained within a cavity] comprising a cavity formed in said device, said cavity

being adapted [which is made] to contain and confine a liquid, [the improvement comprising] said cavity walls [that are made to] generally conforming [conform horizontally] in their shaping to [the side] the shaping of [the] a body to be received and immersed in [the contained] a liquid disposable in said cavity, said cavity [also] being [made] of a size that [causes the conformally shaped walls to closely confine] confines [the] space about [the] the body so that [the contained] the liquid in said cavity [may rise more] rises rapidly about [the] a body, relative to its descent, and immerses [it] the body with [less] displacement of a lesser weight of liquid whereby [so that] an upward buoyant force [may be] is exerted upon [the] the immersed body [that is] substantially equal to [the] a greater weight of [the] liquid that would be displaced by immersion of the body to the same extent [under relatively] in a liquid under unconfined conditions.

[6. The improvement as defined in claim 5, wherein the cavity is further made to conform to the base shaping of the body as well as the side shaping of the body in order to further reduce the liquid weight and volume required to achieve the said buoyant force.]

7. The [improvement] device as defined in claim 5, wherein [the] said cavity and [the] the body are made with vertical walls having extended spans of lateral dimensional uniformity to permit a substantially uniform horizontal spacing that is maintained with differing levels of body immersion.

8. The [improvement] device as defined in claim 5, in which [the] said cavity and [the] the body are made to include non-vertical walls that cause [the] walls of the body to move closer [together as the body] to said walls of said cavity when the body descends into [the] said cavity so that the rate of increase in buoyancy relative to descent will be made to increase by increasing the rate of immersion.

9. The device as defined in claim 1, wherein [the] the body, to which said cavity [is made to conform is] has walls that generally conform horizontally in their shaping, has a preexisting [body] shape.

10. The [improvement] device as defined in claim 5, in which [the] the body, to which said cavity walls are [made to] generally conforming in their shaping, [is] has a preexisting [body] shape.

15. [In a] A combination [made] to generate buoyant force, and to demonstrate the principles of its generation, said combination comprising a body, a liquid and a member

defining a cavity, said cavity being adapted to contain both said liquid and said body, said cavity having walls that closely conform to a shape of said body and which are closely spaced from said body when said body is placed in said cavity, [the improved] said combination [that permits the displacement of] displacing a volume of liquid within said cavity [to be] that is less than [the] an immersed volume of [a] said body [so that the] whereby a buoyant force is exerted on [the] said body [may] that exceeds the weight of [the displaced] said volume of liquid. [, said combination comprising the body, the liquid and a cavity adapted to contain both the liquid and the body, said cavity having walls made to at least partially conform to the shaping of the body and made to be closely spaced from the body when it is placed in the cavity.]

16. The combination as defined in claim 15, in which the said body to which said cavity walls [are made to generally] closely conform [in their shaping is a body] has a shape that is preexistent.

17. The combination as defined in claim 15, wherein said cavity walls, that closely conform to said shape of said body and which are closely spaced from said body when said body is placed in said cavity, ~~has~~ have a shape that is preexistent. [both the cavity and the body are especially made so that their walls generally conform in shape, one to the other.]

18. The combination as defined in claim 15, in which [the] said cavity and [the] said body have [are made to include] non-vertical walls, [that cause the] said walls of said body moving [to move] closer [together] to said walls of said cavity as [the] said body descends into [the] said cavity so that the rate of increase in buoyancy relative to descent [will be made to] increases by increasing the rate of immersion of said body in said liquid.